

Claims

1. A method of changing the frequency response of a microwave filter fabricated in connection with a substrate of ceramic material, comprising:

re-firing the substrate at a second temperature higher than the initial firing temperature so as to cause a change in the dielectric constant of the ceramic material, thereby changing the frequency response of said filter.

2. The method of claim 1 wherein changing the frequency response comprises tuning the frequency response of a filter embedded in a substrate of co-fired ceramic type.

3. The method of claim 2 wherein the co-fired ceramic tape comprises low temperature co-fired ceramic (LTCC).

4. The method of claim 2 wherein the co-fired ceramic tape comprises high temperature co-fired ceramic tape (HTCC).

5. The method of claim 2 wherein the filter comprises a filter embedded in a multilayer ceramic substrate.

6. The method of claim 5 wherein the filter comprises a bandpass or band reject filter and wherein tuning comprises tuning the center frequency of the filter.

7. The method of claim 6 wherein the filter comprises a waveguide type filter structure.

8. The method of claim 2 wherein the filter comprises a high pass or low pass filter and wherein tuning comprises tuning the cutoff frequency of the filter.

9. The method of claim 2 wherein the filter comprises a stripline filter structure embedded in a multilayer substrate of ceramic material.

10. The method of claim 2 wherein the filter comprises a microstrip filter structure formed on a single layer ceramic substrate.

11. The method of claim 2 wherein the first firing temperature is consistent with the tape manufacturer's guidelines and the second temperature is in a range above the initial firing temperature.

12. The method of claim 2 wherein the filter comprises a bandpass or band reject filter embedded in or formed on a ceramic substrate, and wherein the step of re-firing the substrate from said first temperature to a second temperature causes the dielectric constant of the ceramic substrate to decrease in value and thereby shift center frequency of the filter upward.

13. The method of claim 2 wherein the filter comprises a high pass filter or low pass filter embedded in or formed on a ceramic substrate, and wherein the step of re-firing the substrate from said first temperature to said second temperature causes the dielectric constant to decrease in value and thereby shift the cutoff frequency of the filter upward.